

Application Number: 10/611,842
Office Action Date: 09.01.2006

Filed: 07.01.2003
Amendment Date: 11/14/2006

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REMARKS/ARGUMENTS

Subsequent to the Office Action issued on 09.01.2006, claims 1-14 are pending in the application. By this Reply to the Office Action, Claims 1 and 7 have been amended. Claims 2 and 8 have been canceled. Consideration of claims 1, 3-7 and 9-14 is respectfully requested.

Double Patenting

Notice is taken of the provisional obviousness-typed double patenting rejection made against claims 7-12 and 14, of this application over claims 1-16, and made against claims 1-6 and 13 over claims 1-21 of co-pending application 11/069,173. The latter application is a continuation-in-part of this application and incorporates the subject matter thereof by reference. Therefore, both applications appear to have the same effective filing date for common subject matter, and a need for filing a terminal disclaimer in the instant application is not foreseen.

Claim Rejections 35 U.S.C. §112

Claims 1-14 were rejected under 35 U.S.C. §112, ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor regards as the invention. It was stated with regard to claims 1 and 7 that the limitations of "a curvature decreasing linearly" can't be determined.

Claims 1 and 7 have been amended thereby removing the limitation of "a curvature decreasing linearly", thus rendering the rejections moot.

Claim Rejections 35 U.S.C. § 102(b)

Claims 7-12 and 14 were rejected under 35 U.S.C. §102(b) as being anticipated by *Zatti*, and as being anticipated by *Sanseau*.

It is well settled that "[a]nticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W.L. Gore & Assocs. v. Garlock, Inc.*, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

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A prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently, to anticipate. **In re Schreiber**, 128 F.3d 1473, 1477 (Fed. Cir. 1997). And, “[a]bsence from the reference of any claimed element negates anticipation.” **Row v. Dror**, 42 USPQ 2d 1550, 1553 (Fed. Cir. 1997) (quoting **Kloster Speedsteel AB v. Crucible, Inc.**, 230 USPQ 81, 84 (Fed. Cir. 1986)).

Claim 7 has been amended to more particularly point out and distinctly claim the subject matter of the invention. Newly amended claim 7 sets forth a draw die for tube bending, the die having a bending surface configuration comprising a curve extending between first and second ends, a portion of the curve being a circular arc; and a clothoid transition portion extending from the second end toward the circular arc having a radius of curvature decreasing from zero curvature to a radius of curvature of the circular arc at a point of integration.

Applicant respectfully asserts that newly amended claim 7 is patentably distinguishable from *Zatti* under 35 U.S.C. §102(b) because *Zatti* fails to teach or disclose all elements of claim 7, as required under §102(b). Furthermore, it is the responsibility of the examiner to provide a basis in fact and/or technical reasoning to reasonably support the determination that inherent characteristics necessarily flows from the teachings of the applied prior art. **Ex parte Levy**, 17 USPQ 2d 1461, 1464 (B.P.A.I. 1990) (emphasis original). **M.P.E.P.** § 2112. However, the office action provides no basis in fact or technical reasoning to reasonably support any determination that *Zatti* teaches or describes a draw die intended for or applicable to bending of tubes.

Zatti sets forth a machine for bending metal bars, rods, and the like, and strips (*See*, Pg. 1, Lines 1-4, 50), including a rotatable disk mounted on a table, a former 16 said to be of any shape, and a follower device for rotating a work piece against the former. The previous office action purports that the shape in figure 1 of *Zatti* shows an arcuate portion whose boundaries are labeled A and a transitional portion whose boundaries are labeled B which gradually approached a zero curvature C, with references markings to the drawing of *Zatti* added by the examiner.

Applicant argues that *Zatti* fails to teach or disclose a draw die for tube bending as described in the instant invention. The teaching of *Zatti* is for bending a metal bar, which

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is different from bending a tube. A metal bar is generally defined as a block of solid material substance, and distinguishable from a tube, which is generally defined as a hollow, usually cylindrical body of metal. Bending of tubes is distinguishable from bending of metal bars, rods and strips at least in part due to issues related to tubular deformation. Tubular deformation includes creation of folds and oscillations on the bent portion of the tube, formation of localized stresses, and removal of a mandrel, which comprise issues of concern for the instant invention. (See, invention, Paras. 0003, 0006, 0020). The teachings of *Zatti* neither identify nor address issues related to tube bending and deformation.

Furthermore, there is no teaching or disclosure in *Zatti* of a draw die having a clothoid transition portion extending from the second end toward the circular arc having a radius of curvature decreasing from zero curvature to a radius of curvature of the circular arc at a point of integration, as taught and described in the instant invention. *Zatti* describes the former 16 as having a circular or other shape, with no supporting details. The office action provides no basis in fact or technical reasoning to reasonably support any determination that *Zatti* teaches or describes a draw die as described and claimed in the instant invention.

Therefore, Claim 7 is patentably distinguishable over *Zatti*.

Applicant respectfully asserts that newly amended claim 7 is patentably distinguishable from *Sanseau* under 35 U.S.C. §102(b) because *Sanseau* fails to teach or disclose all elements thereof.

Sanseau sets forth a process and device for pipe bending comprising a bending die having a continuously variable bending radius, comprising a logarithmic spiral defined by an equation. (See, e.g., Fig. 3, and Col. 3, Lines 28-30). *Sanseau* describes arcs having continuously variable bending radii. This is depicted graphically in Fig. 3, and described as “the bending die can provide continuous variation in the bending radius”. (See, e.g., Col. 3, lines 66-68). It is further detailed with reference to Fig. 4 and the description at Col. 5, Line 61 to Col. 6, Line 48.

Sanseau fails to teach or describe a draw die for tube bending comprising a curve

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extending between first and second ends with a portion of the curve being a circular arc, and a transition portion extending from the circular arc toward the second end and having a radius of curvature decreasing from zero curvature to a radius of curvature of the circular arc at a point of integration, in contrast to the teachings of claim 7.

Therefore, for at least all of the above, the applicant asserts that the instant invention of claim 7 is patentably distinguishable from the art cited thereagainst, and reconsideration is respectfully requested.

Claims 9-12 and 14 are all ultimately dependent upon now allowable claim 7 with further restriction, and are therefore allowable for at least the same reasons as set forth.

Claim Rejections – 35 U.S.C. § 103(a)

Claims 1-6 and 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Zatti* and *Sanseau*. It was stated that since the dies of *Zatti* and *Sanseau* contain all of the claimed features of the die they are considered to be capable of manufacturing a tube structure of claims 1-6, and therefore it would have been obvious to one with ordinary skill in the art at the time of the claimed invention to have manufactured a tube/pipe structure as claimed since it would only depend upon the desired structure to be achieved and since the dies are clearly capable of manufacturing the above structure.

Newly amended claim 1 sets forth a bent tube having a bend configuration comprising a curve extending between first and second ends, a portion of the curve being a circular arc; and a clothoid transition portion extending from the second end toward the circular arc having a radius of curvature decreasing from zero curvature to a radius of curvature of the circular arc at a point of integration.

Applicants respectfully assert that claim 1 is patentably distinguishable over *Zatti* and *Sanseau* under 35 U.S.C. § 103(a) for the same reasons as set forth with regard to claim 7, and therefore allowable.

Furthermore, the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 972 F.2d 1260, 23 USPQ 2d 1780 (Fed. Cir. 1992). Neither *Zatti* nor *Sanseau* suggests or describes a bent tube having

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a bend configuration comprising a curve extending between first and second ends wherein a portion of the curve is a circular arc and a clothoid transition portion, as described in the instant invention. Nor do they address the desirability of such modifications. As previously stated, the invention is addressing issues related to tubular deformation, including folds and oscillations on the bent portion of the tube, formation of localized stresses, and removal of a mandrel, are issues of concern for the instant invention. (See invention, para 0003, 0006, 0020). These issues are neither described in detail nor highlighted by the cited art. Therefore, claim 1 is patentably distinguishable and allowable.

Claims 3-6 and 13 are all ultimately dependent upon now allowable claim 1 with further restriction, and are therefore allowable for at least the same reasons as set forth.

Conclusion

Based upon all of the above, it is respectfully submitted that pending claims 1, 3-7 and 9-14 are in condition for allowance and that same be allowed to proceed to issue.

If the Examiner has any questions regarding the contents of the present response, Applicants' attorney may be contacted at the phone number appearing below during normal business hours.

Respectfully submitted,



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